sumption of tobacco which might lead to more serious results from the absorption of nicotin and other toxic materials in the smoke?

Olive View Sanatorium.

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DISCUSSION

C. H. THIENES, M. D. (University of Southern California, Los Angeles).—Wishful thinking and commercial interest have done more to befog the tobacco issue than scientific study can clear in many years. The almost universal use of tobacco forces the medical profession to give serious consideration to any dangers involved; yet the fact that the highest authorities in the land disagree among themselves over the many factors concerned, has made the average physician skeptical of any reports from research laboratories. It is interesting, however, that the official agencies of the medical profession, no less than the manufacturer, seem willing to profit from recent unconfirmed reports from well-known laboratories, in that large display advertisements are appearing in medical publications, even though the same organizations have councils and committees for keeping the drug manufacturer in the straight and narrow path. Certainly, in editorials and in reports of investigating committees and referees, the "denicotinized tobacco" myth has been discredited time and again, but on the basis of one recent experimental report, without waiting for confirmation, advertisements for "denicotinized tobacco" are being accepted.

Advertisements calling the attention of the physician to recent experiments on irritating properties of tobacco smoke are scarcely less objectionable; for, in publishing advertisements of that kind, the medical journal concurs in the suggestion that such experiments have been carried far enough to serve as a basis for the advice of patients by the medical practitioner.

Doctor Bogen's review has been so complete, and his logic so clear, that discussion of points in his paper would be superfluous. I heartily recommend that every physician who is advising patients concerning the use of tobacco keep Doctor Bogen's article close at hand for reference.

JOSEPH GOLDSTEIN, M. D. (727 West Seventh Street, Los Angeles).—It is interesting to note that Doctor Bogen believes the nicotin is not the most irritating factor, but that other volatile fumes are more harmful. The irritations arising from tobacco smoke are fairly well known, giving rise at times to serious conditions, and under such circumstances it may be recommended that the patient cease smoking entirely, such cessation often leading to abatement of the symptoms. Smokers' laryngitis, tracheitis, and pharyngitis are cured simply by withdrawing the irritating factors.

From published accounts of certain tobacco firms, one might be led to believe that their products were a cure for many ailments. Doctor Bogen's studies indicate otherwise.

NEW SIGN FOUND IN TRANSVERSE LESIONS OF SPINAL CORD*

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VASOMOTOR changes have long been utilized to supplement reflex and sensory changes in the localization of disease processes in the spinal cord. Similarly, disturbances in the function of sweating and in the erection of hair follicles, as well as unusual areas of pigmentation, have all been of distinct aid. As has been pointed out by Temple Fay and others, such abnormalities of the autonomic nervous system have often placed more accurately a disease of the cord, be that space-consuming, degenerative, or inflammatory, than the more commonly employed somatic sensory levels.

In 1930, the senior author first noticed in a patient with a somatic sensory level, due to a probable cord tumor, that there was a change of a different kind that could be felt. The skin above this level, which we may designate as normal, felt smooth, soft, moist, pliable, and could readily be lifted between the thumb and forefinger. On the other hand, the skin below the level seemed stiff, "hidebound," dry, and adherent to the subcutaneous layers, so that only with difficulty could a layer of skin be pinched together. It was found that this change could also be sensed by gently trying, with the tips of the extended fingers, to displace a segment of skin on its underlying tissues. Sometimes in patients subsequently studied the transition from normal to altered skin was abrupt, sometimes more gradual over one or two segments.

No reference to such a palpable level has been found in the literature, although this level may have a similar origin to the trophic disturbances and viscerosensory changes described by Pottenger. To describe the new sign we have used the term, "level of skin tension."

Since 1930 we have investigated about one hundred patients in the University of California Hospital and the San Francisco Hospital. The method of procedure has been for one of us to see the patient without knowledge of the location of a somatic sensory level, in fact, usually in ignorance of the presence of any such level. Then,

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in most cases, the patient has been seen independently by the other one of us, again in ignorance of those findings. Whenever feasible the examinations have been made with the patient both on his back and on his abdomen. Furthermore, the findings have been confirmed by later examinations when possible, and by correlation with other clinical studies supported by roentgen examination, anatomical details at the time of operation, or autopsy. Examination was found to be so confusing over the extremities that observations were made only on the trunk.

NORMAL CONTROLS

Sixty-four subjects in our group were examined presumably as normal controls. These were patients with various complaints, on the general medical wards of the University of California Hospital. In sixty-one of these sixty-four, changes in skin tension were found over the front or back. In the front there was an increased tension, as a band over the wall of the chest and upper abdomen, the width of which seemed to vary with the adiposity or extent of subcutaneous tissue present. The upper level of this band was just above, or just below, the nipple line, and would usually follow, not the configuration of the ribs, but would parallel lower margin of the thorax. In four cases, for reasons not entirely clear, the upper border of this band of tension reached the T2 segment. Two of these four patients were unusually obese. The lower margin of this band of hypertonus could be felt at a varying distance below the rib-cage, and in some cases extended to the level of the umbilicus. Occasionally the tissue overlying the sheath of the rectus all the way to the pubis seemed to be under increased tension. Below the lower level of the increased skin tension the skin again felt normal.

Over the back the normal controls all showed an area of increase in tension over the lower part, beginning at T8 or T9 segment and extending over the lumbar aponeurosis. In nine patients this level of increased tonus began at a slightly higher level, as high as T5 segment, again for reasons not quite clear. In three patients of our sixty-four control group, no apparent change in skin tension could be demonstrated, either on the front or back. It was noted, further, that where levels of skin tension were found in presumably normal controls, there were no associated pilomotor, vasomotor, or sweating levels.

GROUP WITH TRANSVERSE LESION OF CORD

There were twenty patients with a somatic sensory level and other convincing evidence of disease of the spinal cord. Their diagnoses included both intra- and extramedullary tumors, transverse myelitis of degenerative or inflammatory origin, diffuse arachnoiditis, and fracture of the spine. In these patients a level of skin tension was found which was in fairly close agreement, either with that somatic sensory level or, more often, with a level of change in sweating or pilomotor response. In ten of these twenty patients the level of the process in the cord was confirmed by operation or autopsy or, in the case of spinal fracture, by roentgen examination. In nine of these ten the level of skin tension corresponded exactly with the area of disease, and in one case pointed to a tumor five segments higher in the cord than indicated by the somatic sensory level. In this patient, whose first laminectomy had ended in a fruitless search for the lesion, operation confirmed the suggestion of a higher level of skin tension.

In ten patients with evidence of disease of the spinal cord with a somatic sensory level, no level of skin tension could be demonstrated. In four of these the disease process was in the spine below the lower level of the cord or the cauda equina.

In one patient there was a level of tension, but no other evidence of disease of the cord except for a congenital anomaly of the spine.

That this sign might affect the halves of the body differently is shown by two patients. In one of these patients there was a unilateral hypertonus of the skin, associated with marked constriction of the peripheral vessels on the same side, secondary to a cerebral lesion in the opposite hemisphere. The remarkable features of this case will be reported independently. A similar observation was made in a patient with a nearly complete Brown-Sequard syndrome, due to a fracture of the cervical spine.

What the physiologic disturbance is which underlies this change in skin tension must at present remain speculative. The close correlation between this sign and disturbances in erection of hair follicles, and in sweating, suggest that here we have another manifestation of innervation by the autonomic nervous system. We know, from the work of Beattie, Brow and Long, and others, that sympathetic fibers course down the spinal column in the lateral part of the ventral white matter in close relation to the vestibulo-spinal tract, and that they form frequent synaptic relations with cells in the lateral horns of the gray matter. From there they emerge with the anterior roots, the white rami, and then travel up and down the sympathetic chain sometimes several ganglia before making their synaptic connections with the last neurone. The last neurone, or rather those end neurones which affect the skin, reach the mixed somatic nerves via the gray rami, and then follow a segmental distribution. The wide overlapping known to exist in certain fibers of the sympathetic system may account for some of the discrepancies in our findings. It is conceivable that the altered skin tension is merely a sign of disturbed innervation of all the smooth muscles in the skin and subcutaneous tissues.

Too many of the tests at our disposal depend on the subjective impressions of what may be a comatose, a foreign, or a moronic patient. Any objective test which aids in localizing a pathologic process of the spinal cord would be of value. With that in mind, the level of skin tension is herewith reported.

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